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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,787	11/18/2003	Alexander Andrianov	533860-101	4559

7590 05/02/2007  
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EXAMINER	
LE, EMILY M	

ART UNIT	PAPER NUMBER
1648	

MAIL DATE	DELIVERY MODE
05/02/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/715,787

Applicant(s)

ANDRIANOV ET AL.

Examiner

Emily Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/08/2007 has been entered.

### ***Status of Claims***

2. Claims 1-7 are pending and under examination.

### ***Priority***

3. It is noted that Applicant claims priority to U.S. Provisional 60/428310, filed 11/22/2002. However, according to Office, the stated provisional application has been abandoned on March 17, 2003, well before the filing of the instant patent application. In view of this and until proper clarification is provided by Applicant, Applicant's priority claim is denied. Hence for the purpose of applying art, the filing date of the instant patent application, November 18, 2003, is used.

### ***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-4 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al.<sup>1</sup>

The claims are directed to a method of producing polyphosphazene microspheres comprising contacting an aqueous solution containing a water solution be polyphosphazene with an aqueous solution containing an organic amine or salt thereof, wherein the organic amine crosslinks with said polyphosphazenes to produce the polyphosphazene microspheres. Claim 2, which depends on claim 1, requires the admixture of the polyphosphazenes and organic amine to sit over an extended period of time. Claim 3, which depends on claim 1, requires the addition of water or aqueous solution to stabilize the microspheres. Claim 4, which depends on claim 1, requires the active step of recovering the microspheres. Claim 6, which depends on claim 1, requires the polyphosphazene to be poly[di(carboxylatophenoxy)phosphazene]. Claim 7, which depends on claim 1, requires the microspheres to have diameters of about 1um to about 10 um.

Payne et al. teaches method of producing polyphosphazene microspheres. The method of Payne et al. comprises contacting an aqueous solution containing a water solution be polyphosphazene with an aqueous solution containing multivalent cation, wherein the cation is calcium. Payne et al. teaches crosslinking the multivalent cation with polyphosphazene. The method of Payne et al. also includes allowing the admixture of polyphosphazene and multivalent cation to sit over an extended period of time. [Lines 35-47, column 7] The method of Payne et al. further includes the addition of water to

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<sup>1</sup> Payne et al. U. S. Patent No. 6207171, published March 27, 2001.

stabilize the microspheres. [Liens 50-55, column 7] Payne et al. further teaches recovering the microspheres. In the method of Payne et al., the polyphosphazene used is poly[di(carboxylatophenoxy)phosphazene]. The microspheres of Payne et al. has a diameter of 1um to 10 um. [Lines 48-52, column 7]

In the instant case, while Payne et al. teaches a method of producing polyphosphazene microspheres using the same active method steps as those recited in the claims, however, it is noted that the method of Payne et al. does not include the same material/ingredients as those required by the claimed invention. That is, Payne et al. teaches the use of calcium, a multivalent cation, to crosslink with polyphosphazene. Payne et al. does not teach the use of organic amine to crosslink with polyphosphazene.

However, it is noted that Payne et al. does suggest the use of organic amines to crosslink to polyphosphazene. [Paragraph bridging columns 3-4.] At the cited passage, Payne et al. discloses that either a multivalent cation or polycation may be used to crosslink with polyphosphazene. The polycations that Payne et al. teaches are organic amines.

Hence, it would have been prima facie obvious for one of ordinary skill in the art, at the time the invention was made, to crosslink polyphosphazene with organic amines. One of ordinary skill in the art, at the time the invention was made, would have been motivated to do so to produce polyphosphazene microspheres. One of ordinary skill in the art, at the time the invention was made, would have had a reasonable expectation of

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success for doing so because polycations and multivalent cations are functional equivalents of one another.

6. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al.,<sup>2</sup> as applied to claim 1, as evidenced by Levy et al.<sup>3</sup>

Claim 5, which depends on claim 1, requires the organic amine to be spermine.

The significance of Payne et al., as applied to claim 1 is discussed above.

In the instant case, while Payne et al. suggests crosslinking polyphosphazene with organic amines that are polycations, Payne et al. does not disclose the use of spermine.

However, it is noted that spermine is a polycation, as evidenced by Levy et al. [Claim 11] Hence, it would have been prima facie obvious for one of ordinary skill in the art, at the time the invention was made, to use spermine as the polycation suggested by Payne et al. One of ordinary skill in the art, at the time the invention was made, would have been motivated to do so to produce polyphosphazene microspheres. One of ordinary skill in the art, at the time the invention was made, would have had a reasonable expectation of success for doing so because spermine is a polycation.

### ***Conclusion***

7. No claims are allowed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Le whose telephone number is (571) 272 0903. The examiner can normally be reached on Monday - Friday, 8 am - 5:30 pm.


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<sup>2</sup> Payne et al. U. S. Patent No. 6207171, published March 27, 2001.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bruce R. Campell can be reached on (571) 272-0974. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Emily M. Le  
Patent Examiner  
Art Unit 1648  
4/27/07

E.Le

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<sup>3</sup> Levy et al. U. S. Patent No. 6333194, published December 25, 2001.